

WASHINGTON LABORATORIES, LTD.

7560 Lindbergh Drive • Gaithersburg, MD 20879, USA
Phone (800) 839-1649 • Fax (301) 417-9069

COMPLIANCE TESTING

Radio Frequency • Electrical Safety
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5 June 1995

William F. Caton, Secretary
Office of the Secretary
Federal Communications Commission
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

RE: ET Docket 95-19
Notice of Proposed Rule Making, dated February 7, 1995

Dear Mr. Caton,

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Washington Laboratories, Ltd is a compliance-testing laboratory, specializing in FCC and related emissions and immunity testing. Our experience includes submitting over 800 applications on behalf of clients to the Equipment Authorization Branch of the FCC over the past seven years. We have been involved with the FCC Part 15 requirements for computing devices since the inception of the rules.

In reply to the Notice of Proposed Rule Making, dated February 7, 1995, we offer the following comments:

Background

We agree with the intent of the Commission's desire to de-regulated the approvals process for the computing industry. Our clients have voiced (daily) concern about the length of time required to gain FCC approval for personal computer systems. In addition, for smaller integrators, the \$845 Certification fee can be somewhat burdensome. A change in the approval process is certainly due; however, we are not in agreement with the content of the proposed changes in the NPRM. We offer the following suggestions for modifying the approach in the area of:

- Equipment Authorization
- NVLAP Accreditation
- Certification and approvals of components

Alternate Equipment Authorization Method

It is suggested that some sort of formal approval process be maintained. With the primary goal of minimizing interference, the Part 15 Rules have worked well; complaints from digital devices are very infrequent. However, the need for maintaining an interference-free environment with effective enforcement process will continue as additional wireless

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communications applications develop. Current state-of-the art personal computers that are tested at our laboratory routinely develop emissions in excess of the Class B limit into the upper VHF and UHF range. Considering that personal computers were operating at 8 and 16 MHz only seven years ago (witness 100+ MHz computers presently), it is likely that 200 MHz processor speeds will be *de rigueur* within the next few years.

As an alternate to the Declaration of Conformity, it is suggested that a procedure similar to "Notification" be employed. The application would consist of (as a minimum):

1. FCC Form 731 (or other) with FCC ID Number
Form would include clock speeds, CPU type, etc.
2. Statement of Conformity from the Grantee stating conformity to the Rules
3. A set of photographs of the EUT for identification purposes

A **Notification** application, such as that used for superheterodyne communications receivers (with an attendant relaxation in fees to, say \$135/application), would offer the following benefits:

1. Assure that some level of testing is performed on personal computer combinations (motherboard-case-power supply)
2. An FCC ID Number would continue to be assigned to the personal computer, allowing tracking of the computer (for field enforcement)
3. A letter, signed by the applicant and stating conformity to the Rules, confers responsibility for compliance
4. The application process is minimized for the applicant (in terms of documentation required for filing)
5. The paperwork load is reduced for the FCC Laboratory; this would favorably impact processing time.

Labeling aspects (FCC ID number and Statement) would remain the same. As an option, it might be permissible to market the personal computer after submission of the paperwork (and before a reply is received by the FCC) This is similar to soon-to-expire VDE approval under their self-certification options (under German Vfg 243).

NVLAP Accreditation

The biggest benefit of a widened NVLAP program would be to demonstrate to our European counterparts that the US is capable of assuring that measurement laboratories are assessed by an independent organization. To ensure that the accreditation program is complete, any assessment must be extended to the calibration laboratories that calibrate equipment for EMC testing laboratories; this, in fact, would address one of the core EC concerns about traceability and acceptance of results for European product approvals. However, in the past, NVLAP accreditation has not always guaranteed uniform results.

One of our main concerns is the amount of assessment work that would have to be accomplished during any transition period and whether the assessments can be accomplished in a timely fashion. The approximately 250 domestic plus 250 foreign labs constitute an impressive workload for the two year period. A more realistic transition period would be on the order of three to four years.

In addition, depending on how the Rules are writtern, laboratories that gained accreditation early may enjoy an unfair advantage over laboratories that were not accredited until a later time (for whatever reason); this would mainly come to fore if the FCC allows for *either* the DoC *or* an approval under the existing Rules. Obviously, a manufacturer would opt for the DoC over the traditional Certification process, giving the NVLAP labs a distinct advantage. A possible solution to this would be to allow non-NVLAP laboratories to test to the conditions of the DoC and establish a deadline for complying with NVLAP.

As an additional concern, current FCC practice provides that the FCC engineering staff provide some degree of testing on a variety of state-of-the-art products. We rely on the FCC engineers to provide interpretation and guidance on testing new types of products for conformance with the Rules. The experience of the FCC engineers at the Equipement Authorization Branch forms the basis for testing policy decisions which allow for a harmonized approach. If FCC involvement in the approval process and technology development wanes, this resource, which confers some level of uniformity on the approvals, will be lost.

Testing of Components

It has been our experience that close to 100% of equipment that is submitted to our laboratory for evaluation initially fail the emissions requirements. This means that nearly every piece of equipment required modifications to some degree to comply with the requirements. In our experience, the variability between machines is too great to ensure that any combination of "certified" motherboards in "certified" cases will comply with the Rules.

On numerous occasions, it has been our experience that installing a motherboard from case-to-case provides markedly different results, and hence, different sets of corrective actions would be required for each combination.

For example, one vendor of motherboards contracts Washington Labs to test a motherboard in various personal computer chassis. Depending on the arrangement of internal cabling, installation of peripheral cards, number and location of grounding points on a motherboard, etc., the results would vary by as much as 6-8 dB between different chassis types *using the same motherboard*. Similarly, the radiated emissions from a typical chassis varies greatly between different types and models of motherboards.

Subassembly Authorization

The NPRM makes a case for authorizing case, power supply and CPU boards, but does not discuss the authorizations of other subassemblies, e.g., hard drives, peripheral cards, controller cards, etc. The Rules would have to make provisions to authorize subassemblies.

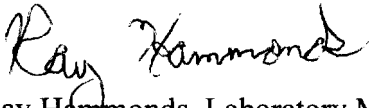
Options for Authorization of Equipment

One of the concerns regarding the compliance of computer equipment is that smaller integrators would gain compliance based on assembling a set of individually authorized parts. Pursuant to Section 25 of the NPRM, the FCC proposes to "continue the policy of non-authorized digital devices, including CPU boards and power supplies, to be sold to other manufacturers for further fabrication." All parts that are marketed to the general public would have to be authorized. It is our opinion that the distribution channels that are available to smaller integrators would permit the assemblage of non-authorized devices. Without any real enforcement, it is likely that the present level of non-compliance will continue.

~~Respectfully submitted,~~



Michael F. Violette, President



Ray Hammonds, Laboratory Manager

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